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(54) **PILL ORGANIZER AND DISPENSER**

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A61J 7/00 (2006.01)

(52) **U.S. Cl.**
CPC ***A61J 7/0069*** (2013.01); *A61J 1/035* (2013.01)

(58) **Field of Classification Search**
CPC A61J 1/03; A61J 1/035; A61J 7/0069; B65D 83/04; B65D 75/327; B65D 75/325; B65D 75/36; B65D 75/367; B65D 83/0445; B65D 83/0481
USPC 206/538, 528, 539, 468, 534, 532
See application file for complete search history.

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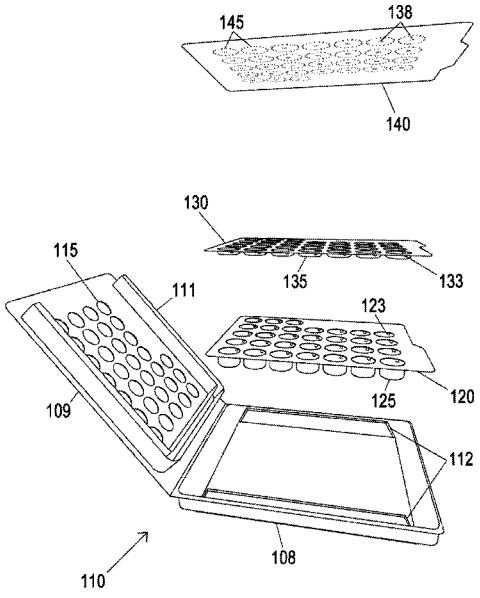
(57) **ABSTRACT**

A device is provided for storing, organizing, and dispensing prescription pills that includes a clamshell container configured to house a pill tray, pill tray lid, and sliding card. The pill tray contains an array of pill chambers that are covered by the pill tray lid, or alternatively, by an adhesive foil seal. The clamshell container includes a top portion and a bottom portion, the top portion having an array of pill holes that correspond with the chambers of the pill tray. The top of the sliding card has markings corresponding to the pill chambers beneath it and slides over the pill tray and beneath the top portion of the claim shell. Pills are placed within the pill holes on top of the sliding card. When the sliding card is removed, the pills fall through the pill holes and into the pill chambers of the pill tray.

9 Claims, 8 Drawing Sheets



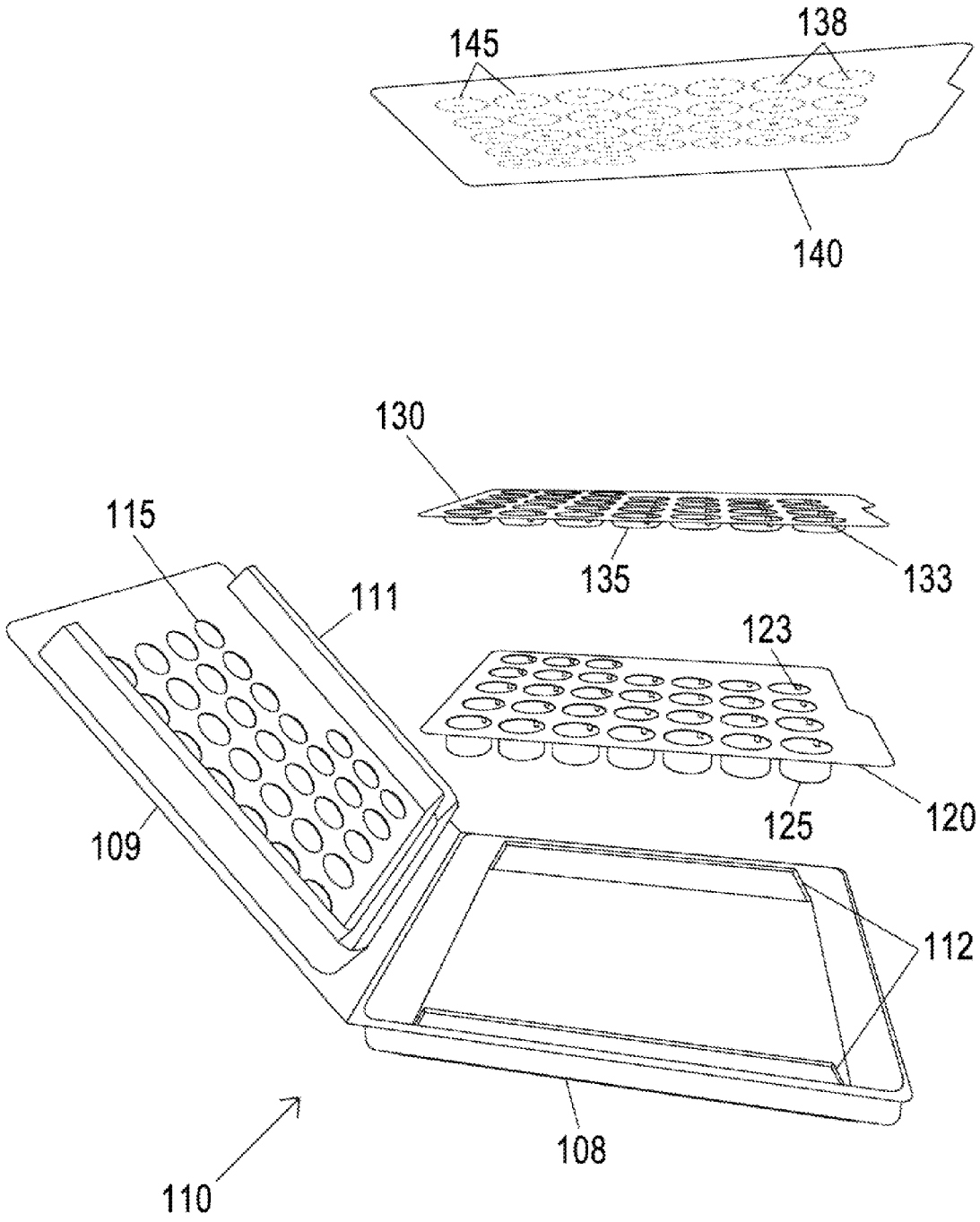


Figure 1

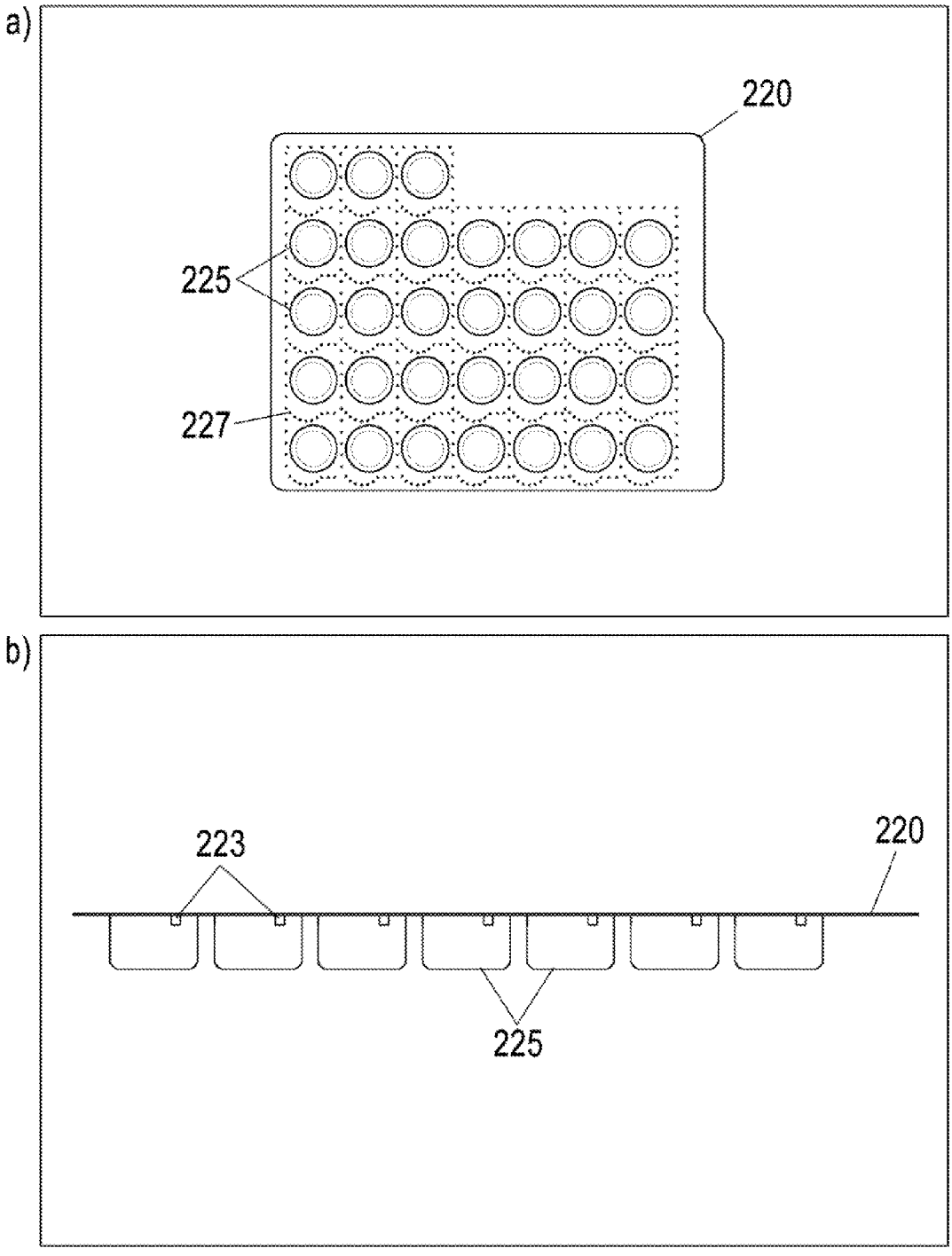


Figure 2

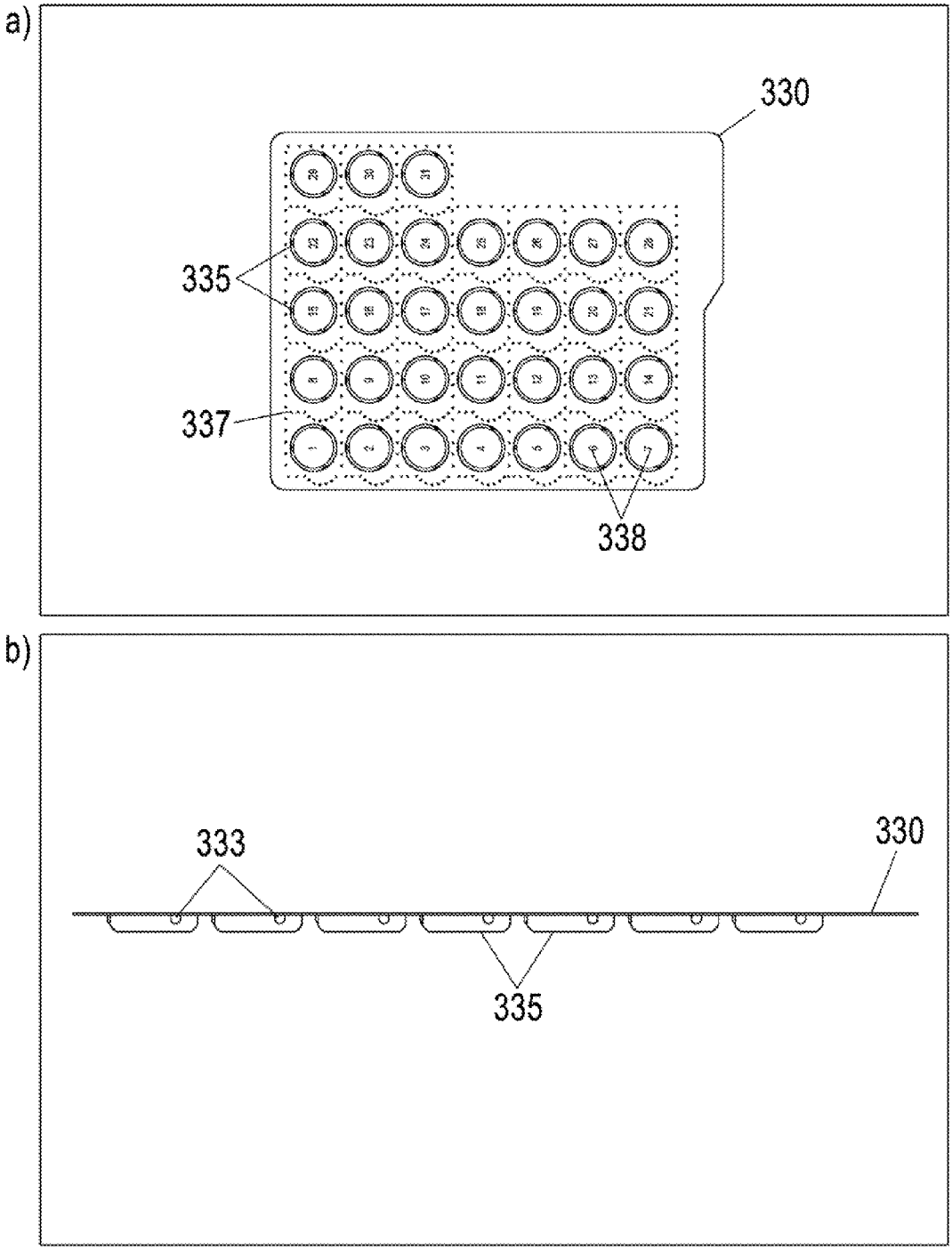
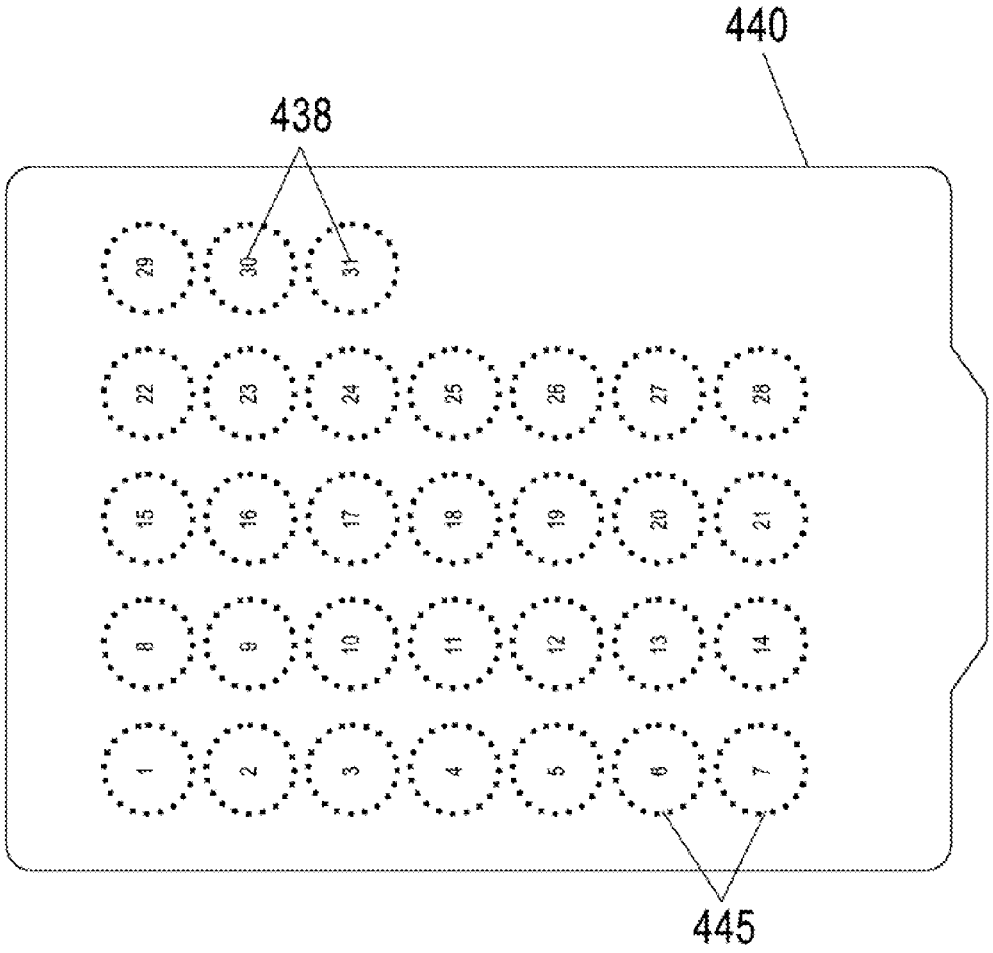


Figure 3


440
438
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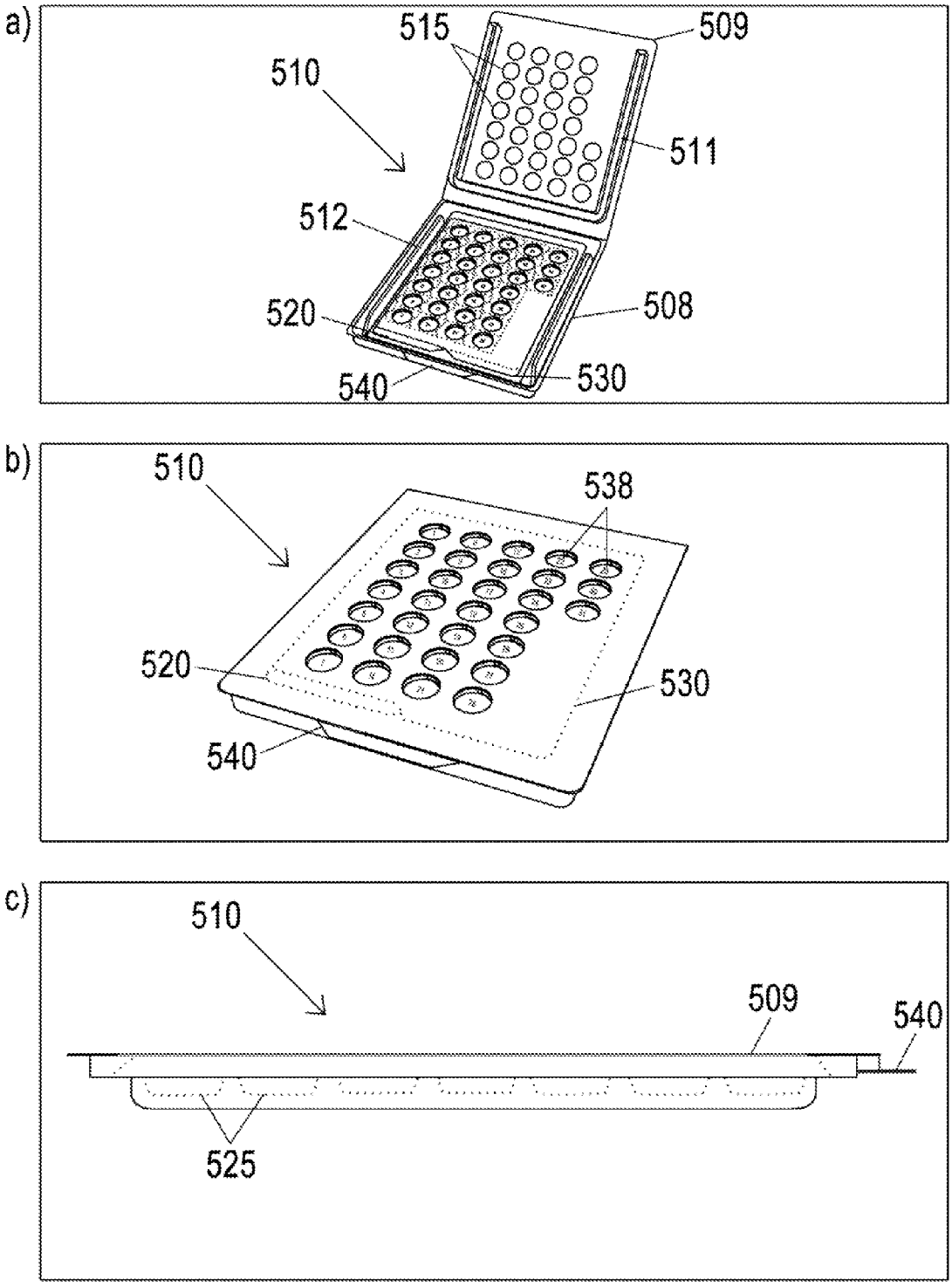
6
7
445

Figure 4


a)
515
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510
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512
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b)
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540
c)
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540
525

Figure 5

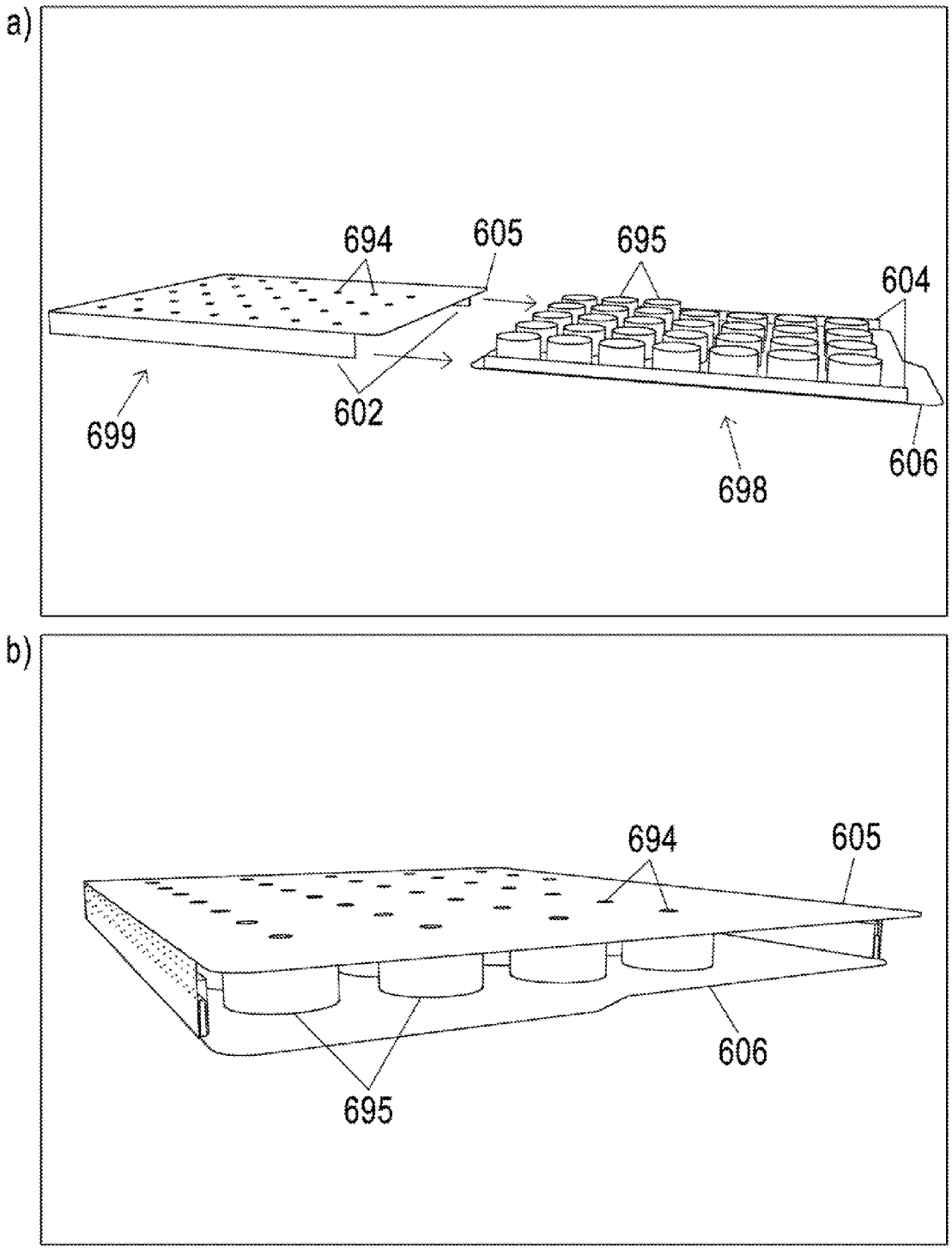


Figure 6

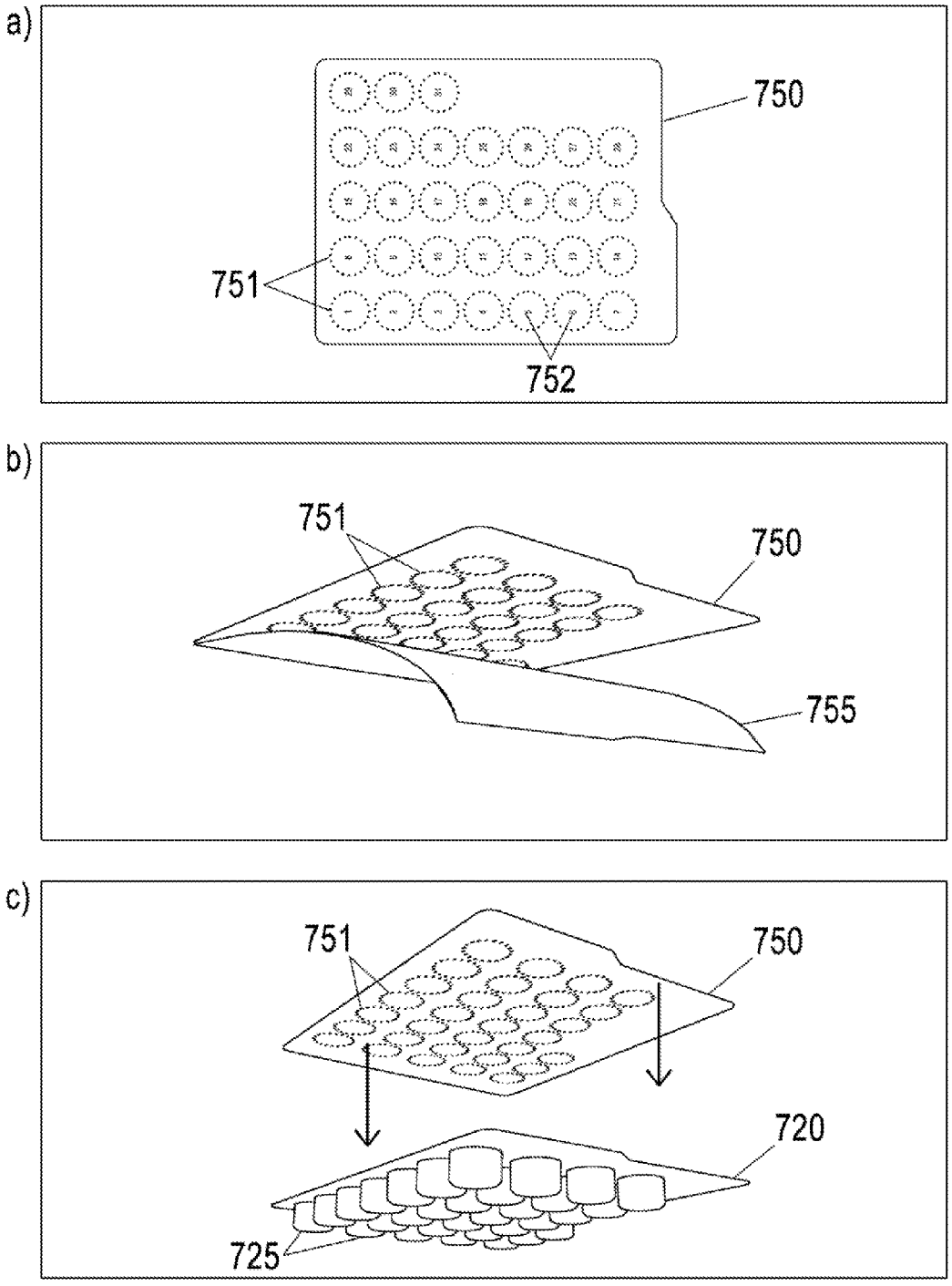
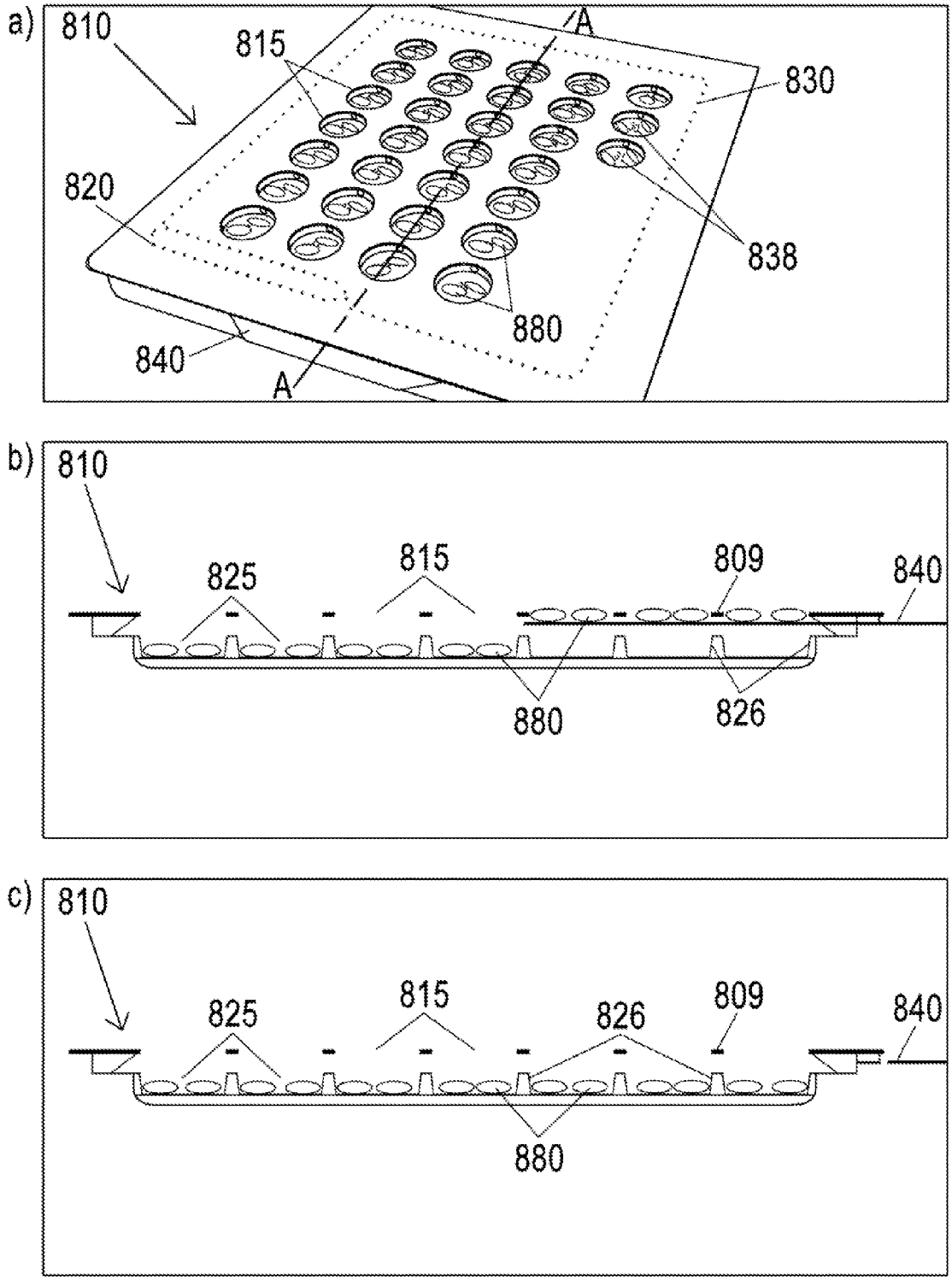


Figure 7


a)
810
815
A
830
820
838
880
840
A
b)
810
825
815
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840
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826
c)
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815
826
809
840
880

Figure 8

PILL ORGANIZER AND DISPENSER

RELATED U.S. APPLICATION DATA

This application claims priority to Provisional application No. 61/625,310, filed Apr. 17, 2012.

FIELD OF THE INVENTION

The present invention relates to containers for storing and organizing pills.

BACKGROUND OF THE INVENTION

With today's aging population and increased usage of prescription drugs, there is a need for a simple means of storing and organizing prescription pills in a secure and convenient manner. With the prevalence of prescription drug usage, it is common many individuals to take many pills on a daily basis. For example, if an individual is taking ten different pills a day, then they face a burden in opening and closing ten bottles every day. Some individuals often forget to take some of their daily pills, or forget whether they have taken the day's pills all together. Also, it is desirable to store prescription pills in a manner that is secure from unwanted access by children, minors, or other individuals (e.g. hotel maids or house guests). This is particularly important because ingestion of prescription medicines by children or minors can result in illness or death. Storage of prescription pills in their native bottles does not deter unwanted access and usage because pills can be removed without detection. Given the large and varying quantity of pills within a prescription bottle, an owner cannot practically keep track of how many pills remain in a particular bottle, and will not notice if one or even several pills are removed. Thus there is a need for a device that stores and organizes prescription pills in a secure manner that deters tampering.

SUMMARY OF THE INVENTION

A device is provided for storing, organizing, and dispensing prescription pills. The device comprises a clamshell container that houses a pill tray, pill tray lid, and a sliding card. The pill tray includes an array of pill chambers that mate with the pill tray lid via a locking mechanism. The clamshell container comprises a top portion and a bottom portion that are hingedly connected, the top portion having an array of pill holes that correspond with the chambers of the pill tray. In an alternative embodiment, the top and bottom portions of the claim shell slide together. The top of the sliding card has markings corresponding to the pill chambers beneath it and slides over the pill tray and beneath the top portion of the claim shell. Pills are placed within the pill holes on top of the sliding card. When the sliding card is removed, the pills fall through the pill holes and into the pill chambers of the pill tray. The pill tray lid can then be placed over the pill tray to secure the contents of the chambers and prevent the pills from falling and preventing unwanted contaminants or fluids from entering the pill chambers. The pill tray lid also acts to deter tampering and unwanted access or removal of pills. In an alternate embodiment, the sliding card is replaced with a sheet of adhesive foil or paper that is applied to the pill tray and seals the pill chambers. The adhesive foil or paper contains marks corresponding to the pill chambers (e.g. schedules, numeric counts, days, times, etc.).

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** illustrates an exploded view of the present invention that includes a clamshell container, pill tray, pill tray lid, and sliding card.

FIGS. **2***a-b* illustrates top view and side views of the pill tray.

FIG. **3***a-b* illustrates a top view and a side view of the pill lid.

FIG. **4** illustrates a top view of the sliding card.

FIG. **5***a-c* illustrates the clamshell container and pill tray assembly.

FIG. **6***a-b* illustrates an alternate embodiment of the invention comprising a pill tray and tray lid that slides across the top the pill tray.

FIG. **7***a-c* illustrates an alternate embodiment of the invention having a user-applied foil seal instead of a removable pill tray lid.

FIG. **8***a-c* illustrates perspective and cross-sectional views of the allocation of pills into the pill chambers of the pill tray in accordance with the present invention.

DETAILED DESCRIPTION

Referring to FIG. **1**, the device of the present invention includes four discrete parts: clamshell container **110**, pill tray **120**, tray lid **130**, and sliding card **140**. As shown in FIG. **1**, the clamshell **110** is open. Clamshell container **110** further comprises a bottom portion **108**, a top portion **109**, a female lining **111**, linear protrusions **112**, and pill holes **115**. The bottom portion **108** and top portion **109** of the clamshell are connected by a hinged joint. The top portion **108** of the clamshell has an array of pill holes **115** that correspond with pill chambers **125** of the pill tray **120**. The female lining **111** is configured to cover and receive the protrusions **112** when the clamshell **110** is closed. Pill tray **120** further comprises locking teeth or notches **123** that reside on an inner surface of pill chambers **125**. Pill tray lid **130** further comprises locking teeth or notches **133** that reside on an outer surface of pill chamber lids**135**. As the pill tray lid **130** is pressed onto the top surface of the pill tray **120**, the chamber lids **135** are forced into the opening of pill chambers **125** and the protruding notches **135** interface with the complimentary grooves **123** in the pill chambers **125**. The protruding notches **135** engage with the grooves **123** to form a reversible bond and keeps the pill tray lid secured to the pill tray, keeping the contents of the pill chambers secure. Alternatively, reversible bonding of the pill tray and pill tray lid can be achieved without the need for grooves **123**. In such an embodiment, the interface of the protruding notch **123** with the wall of the pill chamber **125** will be sufficient to create a frictional bond to keep the tray lid attached to the pill tray until the user decides to disengage the two in order to access the pill chambers.

The notches provide for a frictional, reversible locking mechanism between the pill tray and pill tray lid. This allows the pill chambers to be securely sealed to prevent contamination or loss of pills from the pill chambers. The top of the sliding card **140** has markings **145** that outline and corresponding to the pill chambers beneath it. Additional markings **138** designate the pill chambers (e.g. sequential numbering from 1 through 31). The clamshell container is preferably made of a durable polymeric material while the pill tray, pill tray lid and sliding card are more suitably made of disposable materials.

The sliding card **140** slides over the pill tray, and the linear protrusions **112**, and beneath the top portion of the claim shell. Pills are placed within the pill holes on top of the sliding

card **140** to allocate them to the corresponding pill chambers. Once allocation is complete, the sliding card **140** is removed, and the pills fall through the pill holes **115** and into the pill chambers **125** of the pill tray **120**. This process can be repeated to add additional pills to the pill chambers. In the alternative embodiment of FIG. **7**, the sliding card is replaced by a user-applied adhesive foil seal as described below. The pill chambers **125** are preferably made of thin, deformable material such as plastic (or other polymeric material) so that the pills can be more easily removed from the pill chambers by pushing the pill chamber upward to push the pills upward and out of the pill chamber. Alternatively, the pill tray and pill chambers can be made of a durable, rigid material (e.g. durable polymeric material). While an exemplary number of pill chambers are shown, other quantities and array configuration can be utilized in accordance with the present invention.

FIG. **2***a* illustrates a top view of the pill tray, including the pill chambers **225** and perforations **227**. The pill tray lid has corresponding perforations as shown in FIG. **3**. FIG. **2***b* is a side view of the pill tray **220** that shows the profile of the pill chambers (i.e. depth and width). In an exemplary embodiment, the pill chambers are one inch in width and 0.5 inch in depth. The pill chambers each have a protrusion or locking tooth **223** that interlock with a matching locking tooth on the pill tray cover (i.e. locking teeth **333** shown in FIG. **3**). The perforations **227** allow the user to separate the pill tray into separate sections as desired.

FIG. **3** illustrates a top view of the pill tray lid **330**, including pill chamber lids **335** and perforations **337**. The pill chambers include markings **338** that provide for organization of the pill chambers. In the example shown in FIG. **3**, the markings **338** are numerals that number the chambers from 1 to 31. FIG. **3***b* is a side view of the pill tray cover **330** that shows the profile of the pill chambers **335** (i.e. width and depth). Also shown are locking teeth **333** that interlock with the corresponding teeth of the pill tray via mechanical friction when the pill tray lid is pressed onto the pill tray.

FIG. **4** illustrates a top view of the sliding card **440**. The markings **438** are labels for the pill chambers **445** that allow the user to consume the pill in an organized, accountable manner. The markings **438** also deter unauthorized usage of pills because they can be easily accounted for by the markings. The sliding card **440** slides between the pill tray and the top portion of the clamshell (i.e. above the pill tray and below the clamshell). The user allocates the pills within the pill holes of the clamshell (i.e., holes **115** of FIG. **1**) on the surface of the sliding card.

FIG. **5** illustrates the clamshell container and pill tray assembly. FIG. **5***a* shows the opened clamshell container **510** which houses pill tray **520**, tray lid **530**, and sliding card **540**. FIG. **5***b* shows the closed clamshell **510** and FIG. **5***c* shows a side view of the closed clamshell **510**. The dotted lines **520** and **530** outline the pill tray and pill tray lid housed within the clamshell, respectively. Dotted lines **525** show the profile of the pill chambers of the pill tray **520**. The claim shell container comprises top portion **509** and bottom portion **508**. The top portion **509** includes an array of pill holes **515** which, when the clamshell is closed as shown in FIGS. **5***b* & **5***c*, align with the pill chambers **538** of pill tray **510**. As shown in FIG. **5***c*, a portion of the sliding card **540** extends out from the closed clamshell, which allows for the user to pull the sliding card out from the clamshell **510**.

FIG. **6** illustrates an alternate embodiment of the invention. Referring to FIG. **6***a*, the device comprises a top portion, pill tray lid **599**, and bottom portion, pill tray **698**. The bottom portion **698** comprises pill chambers **695**. Top portion contains holes **694**. The top portion **699** is configured to horizontally slide over bottom portion **698** to cover, or expose, the pill chambers **695** as desired. The pill tray **698** comprises a flat, rectangular base **606** upon which an array of pill chambers **695** is positioned. A pair of upward protrusions **604** perpendicular to the flat base extend along two opposing edges of the flat base of the pill tray **698**. The pill tray lid **699** comprises a flat body **605** having an array of holes **694** corresponding to the pill chambers **695**, which allow the user to visually inspect the contents of the pill chambers **695** without sliding the tray lid off the pill tray. The pill tray lid **699** has a pair of linear channels **602** that extending along opposing edges of the flat body that are perpendicular to the flat base. The linear channels **602** are configured to receive, and engage with, the protrusions **604** on the pill tray **698** such that the pill tray lid slides over the pill tray to alternatively cover and expose the pill chambers as desired. FIG. **6***b* shows the pill tray in the closed position, with the pill tray lid **699** slid to completely cover the pill tray **698** and its pill chambers **695**. In this position the pills in the pill tray **698** are protected from falling out of the pill chambers **695**.

FIG. **7** illustrates an alternate embodiment of the invention having a pill tray seal (or "foil seal") instead of a removable pill tray lid. FIG. **7***a* shows a top view of the pill tray seal **750**, is preferably comprised of a foil sheet (e.g. push-through foil) having an array of markings **751** that correspond to the pill chambers **725** (shown in FIG. **7***c*). However, a suitable paper material could also be employed. The marking **175** are numbered sequentially (i.e. **1** through **31** to correspond to calendar days) but other designations could be used to provide the desired organization. FIG. **7***b* shows the bottom of the pill tray seal **750**, which has a paper backing **755** that is peeled off from the pill tray seal **750** to expose an adhesive surface. The areas within the circled portions **751** of the pill tray seal **750** are not coated with adhesive so that the pills do not stick to, or come in contact with, the adhesive. FIG. **7***c* shows the application of the pill tray seal **750** to the top surface of the pill tray **720**, which seals the pill chambers **725**. The foil seal is applied to the pill tray by the user as shown in FIG. **7** to create an array of encapsulated pill chambers (i.e. encapsulates). The foil seal is printed with markings that indicate, for example, calendar days, numbers, days or times. When the user wants to access the contents of a pill chamber, the user can punch into the foil seal with their finger. In the case of a deformable pill chamber, the user can also push the pills out of the pill chamber and through the seal by pressing the bottom of the pill chamber upwards. As set forth above, the pill tray and pill chambers may be composed of deformable or rigid polymeric material. These markings also correspond to the pill chambers in the pill tray. The foil seal can also include perforations around the perimeter of the pill chambers to allow the foil to be punched out with more ease. This embodiment also allows the user to customize and create their own sealed array of pill chambers. The pill tray and pill tray seal

FIG. **8**A-C illustrate perspective and cross-sectional views of the allocation of pills into the pill chambers of the pill tray in accordance with the present invention. Referring to FIG. **8***a*, the clamshell pill container **810** houses the pill tray **820** and sliding card **840**. The sliding card rests on top of the pill tray **820** and immediately beneath the top portion **809** of the clamshell container **810**. Elements **809** represent the cross sections of the top portion of the clamshell, i.e. the material between the pill holes as intersection by line "A" in FIG. **8**A. The pill tray rests on the bottom portion of clamshell container **810** as shown in FIGS. **8**B-C. The sliding card **840** includes markings that correspond to the pill chambers directly below them. As shown, the user allocates pills **880**

into the space formed by the pill holes **815** of top portion **809** and the surface of the sliding card **840**, referred to as shallow chambers **838**. For example, whatever pills the user wants to place within pill chamber number "15", they will place onto the area marked "15" on the sliding card **840**.

FIG. **8**B shows a cross-sectional view of the device through the line "A" shown in FIG. **8**A wherein the sliding card **840** is pulled partially out of the clamshell container **810**. As shown, pill holes **815** are positioned directly above the pill chambers **825** (which are defined by the pill chamber walls **826**). Because the pills **880** are supported by the sliding card **840**, as the sliding card **840** is pulled out, the pills fall into the pill chambers **825** below. As shown, the pills to the left of the sliding card **840** have fallen into the pills chambers **825**, while the other pills remain on the sliding card **840** within the pill holes **815**. FIG. **8**C shows a cross-sectional view of the device through the line "A" shown in FIG. **8**A with the sliding card **840** pulled completely out of the clamshell container **810**. Thus, all the pills **880** that were allocated onto the surface of sliding card **840** (within pill holes **815**) have fallen into the corresponding pill chambers **825**. This process can be repeated by the user to add additional pills to some or all of the pill chambers as desired. This provided an organized and easy way for the user to create an organize pill intake schedule.

If a child or other individual wanted to take a pill from a chamber, they would need to break the foil seal, which would be readily evident, making tampering unlikely. One doing so would seek to minimize detection by taking all the contents of the chamber instead of leaving unwanted pills behind in the pill chambers in order to give the impression that the owner had consumed the contents. However, detection is still evident because the chambers are numerically marked (e.g. sequentially or calendar-based). Thus, detection of tampering is readily evident, which serves as a deterrent. This embodiment allows for user customization wherein the user can create their own array of sealed, pill-containing chambers. Although a foil seal has been described, other suitable materials such as paper could be utilized that allow for a user to conveniently push through the material to access the contents of the pill chamber.

Thus, as set forth above, the present invention provides a simple and effective means for storing, organizing, and dispensing prescription pills. Moreover, the invention provides an effective way for a prescription pill holder to keep track of pills and deter unwanted access. While there have been described herein what are considered to be preferred and exemplary embodiments of the present invention, other modifications of the invention shall be apparent to those skilled in the art from the teachings herein. It is noted that the embodiments disclosed are illustrative rather than limiting in nature and that a wide range of variations, modifications, changes, substitutions are contemplated in the foregoing disclosure and, in some instances, some features of the present invention may be employed without a corresponding use of other features. Many such variations and modifications may be considered desirable by those skilled in the art based upon a review of the foregoing description of preferred embodiments. Accordingly, it is appropriate that the appended claims be construed broadly and in a manner consistent with the scope of the invention.

What is claimed is:

1. A device for storing and organizing pills comprising:

a container having a top portion hingedly connected to a bottom portion, the top portion having an array of pill holes, wherein the top and bottom portions come into contact with each other when the container is in a closed position;

a pill tray containing an array of pill chambers that are accessed from a top surface of the pill tray, wherein the array of pill chambers align with the array of pill holes in the top portion of the container;

a pill tray lid having an array of chamber lids corresponding to the array of pill chambers in the pill try, the pill tray lid configured to reversibly connect with, and cover, the top surface of the pill tray and the pill chambers; and

a sliding card configured to slide between the top surface of the pill tray and the top portion of the container, the sliding card having a top surface on which pills are placed;

wherein the container is configured to house the pill tray, pill tray lid, and sliding card.

2. The device of claim **1** wherein the pill tray lid further comprises a protruding notch on an outer surface of each of the chamber lids.

3. The device of claim **1** wherein the pill tray lid include a protruding notch on an outer surface of each of the chamber lids, and each of the pill chambers includes a groove on an outer surface of each pill chamber, the notch and the groove configured to reversibly engage with each other when the pill tray lid is pressed onto the pill tray.

4. The device of claim **1** wherein bottom portion of the container has a pair of opposing linear protrusions that run along opposing edges of the bottom portion, the pill tray configured to rest on the bottom portion of the container within the linear protrusions.

5. The device of claim **1** wherein the sliding card contains markings that correspond to the pill chambers of the pill tray.

6. The device of claim **1** wherein pills are held within a space defined by the pill holes of the top portion of the container and a top surface of the sliding card, the sliding card resting on top of the pill tray such that removal of the sliding card causes the pills to fall into corresponding pill chambers below.

7. The device of claim **1** configured to allocate pills into the pill chambers by the following steps:

receiving pills within a space defined by the pill holes of the top portion of the container and a top surface of the sliding card, the sliding card resting on top of the pill tray and beneath the top portion of the container; and

removing of the sliding card from the container to cause the pills to fall into the corresponding pill chambers below.

8. The device of claim **1** wherein the pill chambers are made of a deformable polymeric material.

9. The device of claim **1** wherein the pill chambers are made of a rigid polymeric material.

* * * * *